

Samyak

An Institute For Civil Services

RAS - 23 MAINS TEST SERIES

सिद्धि - 07/A6

Time : 3 Hours

Maximum Marks : 200

सामान्य विज्ञान एवं प्रौद्योगिकी
General Science and Technology

Paper - II (Unit-II)

Name :		MARKS	
Enroll. No.:	Part	Attempted Questions	Marks Obtained
Date of Birth :	Part - A	25	24
Medium : ENGLISH	Part - B	16	44
E-mail :	Part - C	7	42.5
Exam Date : 03 Dec 2023	Total	48	110.5
Inviligator's Signature :			
ECN:	RCN:	Hindi: 9.5	English: 3

अनुदेश (Instructions)

- परीक्षा शुरू होने से पहले पुस्तिका को जाँच लें।
Please check the booklet before commencement of the exam.
- दिये गये रिक्त स्थान में निर्देशित शब्द सीमा में उत्तर दें।
Write the answers according to the prescribed word limit, in the space given.
- अंक योजना प्रत्येक खंड के प्रारम्भ में दी गई है।
The marking scheme is given at the start of every section.
- परीक्षा के पश्चात् उत्तर पुस्तिका हॉल अधीक्षक को सौंप दें।
Return the answer booklet to the hall superintendent after completing the paper.

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	REVIEW PARAMETERS	SCALE			
		Good	Above Average	Average	Below Average
1.	DOES THE ANSWER ADDRESS THE DEMAND OF THE QUESTION?				
a.	Answer Relevancy		✓		
b.	Answer Enrichment points like use of: · Key Terms/ Subject Vocabulary. Use of Commission/ report/ government publication/ judgements, etc. Association with the Current Affairs and use of examples to explain the concept and idea		✓		
2.	HOW WELL IS THE ANSWER PRESENTED?				
a.	Structure - Intro, Body, Conclusion	✓			
b.	Presentation – Using Subheadings/ points/ highlighting/ flowcharts/ diagrams/ maps		✓		
c.	Language & Grammar	✓			
d.	Word limit		✓		

Detailed Comments / Feedback / Suggestions for Improvement
विस्तृत टिप्पणियाँ/फीडबैक/सुधार के लिए सुझाव :-

1. Strengths
2. → good language competence
3. → conceptual clarity and relevant content delivered.
4. → well attempted no. of que.
5. → Better structuring of Ans in terms of Intro, Body, Concl.
6. ✓
7. However,
8. Congestion of lines and words can be improved by using keywords
9. phrases instead large sentences
10. use of flow charts, to accommodate more and
11. avoid repeating same lines. crisp content.
- Improve conclⁿ using reference to reports, quote and suggesting future course.

Note : Answer the following questions in 15 words. Each question carries 2 marks.

नोट : निम्न प्रश्नों के उत्तर 15 शब्दों में दीजिए। प्रत्येक प्रश्न 2 अंक का है।

1. द्रव्य की गुप्त ऊष्मा की परिभाषा दीजिए।

Define latent heat of matter.

(1)

Latent heat is thermodynamic concept, which is defined as the amount of heat required for the substance to change the state its potential heat of that ~~mett~~ boiling point latent heat.

(Write above this line only)

2. ऑगमेंटेड रियलिटी (संबद्धित वास्तविकता) और आभासी वास्तविकता (वर्चुअल रियलिटी) में मूलभूत अंतर समझाइए।

Explain the fundamental difference between Augmented Reality and Virtual Reality.

(1)

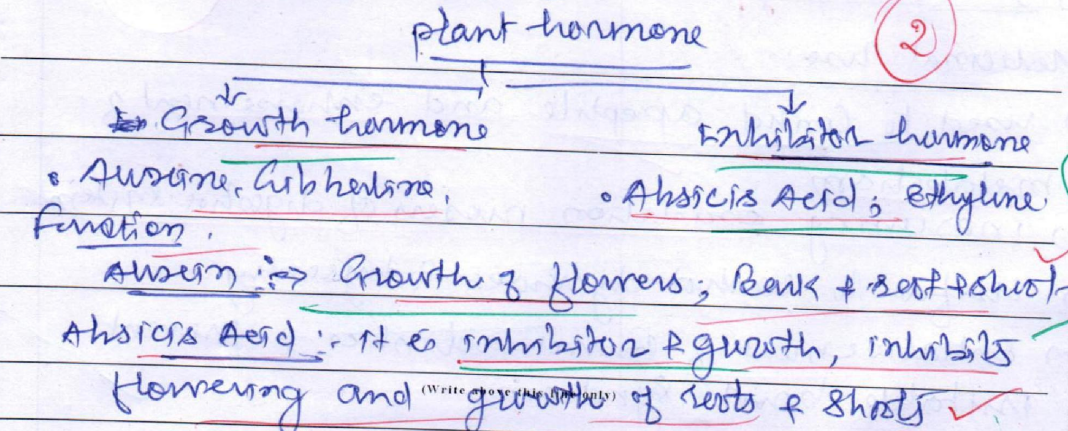
Augmented Reality	Virtual Reality
(i) Based on <u>physical aspect</u>	(i) Based on <u>virtual aspect</u>
(ii) It is <u>built on the physical aspect</u> in order to <u>augment</u>	(ii) <u>Created virtually</u> and <u>to see it uses 2D virtual goggles</u> and other devices.
(iii) <u>Use of furniture & real</u> <u>enhancing its physical aspect by means of value addition</u>	(iii) <u>Created virtual</u> in order to see its <u>visual effects</u> <u>ex. 3D movies</u>

Similar points do not repeat

3. किन्हीं दो पादप हार्मोन के नाम और उनके कार्य बताइए।

Name any two plant hormones and their functions.

(2)



Good

(Write above this line only)

4. 'नैनो-उर्वरक'
Nano-fertilizer

Nano fertilizer:- it is liquid fertilizer which is of nano scale. used one liter of nano fertilizers instead of one kg of chemical fertilizers.

Ex - Recently Atal nano fertilizer was launched from Srikan Raygiri by honourable PM.

more efficient
less wastage
significance like

5. खाद्य पदार्थों के परिरक्षण में प्रतिऑक्सीकारक की क्या भूमिका है?
What is the role of antioxidants in preservation of foods?

Role of antioxidants in preservation:-

(i) Limiting / preventing oxidation of food stuffs in term leads to inhibit the growth of microbs in food grains.

(ii) Preventing aerobic separation of microbs. in order to kill them & preserve food stuffs.

(iii) Limiting oxidation process of food stuffs to inhibit the growth of microbes.

6. 'झड़बेरी' का वैज्ञानिक नाम क्या है और इसका क्या औषधि उपयोग है?
What is the scientific name of 'Wild jujube' (Jhahrberi) and what is its medicinal use?

Jujube:- Zizyphus nummularia

Medicinal use:-

(i) used to control apreptite and enhancement of metabolism.

(ii) increasing oxidation process of digestive system.

(iii) Useful to control dysrhoea & dysentery.

(iv) enhancement of renal activities & prevent nutrable renal syndrome.

7. पदार्थ की 'कोलॉइडी अवस्था'
'Colloidal state' of matter

(1)

Colloidal state of matter :- when two homogeneous elements are mixing and the mix mixture do not possess the characteristic of mixed element is called colloidal state of matter.

Tyndal effect is the main characteristic of colloidal state of matter.

(Write above this line only)

8. ग्रेफाइट के किन्हीं चार उपयोगों को लिखिए।
Write any four uses of Graphite.

(2)

Graphite :- crystalline allotrope of carbon.

- Uses
- Education use :- used in pencil
 - Industrial use :- use as moderator, conductor, lubricant, ball bearing
 - Automobile use :- used as lubricant in motor vehicles
 - Used in electrical industrial :- it is a good conductor of electricity

(Write above this line only)

9. 'द्रव्यमान संख्या' की अवधारणा
Concept of 'Mass number'

(2)

Mass number :- it is defined as the sum total of neutron and proton or neutron & electron is the mass number.

ex. ${}_6^{14}\text{C}$ - 14 is the mass number

of Carbon atom

(Write above this line only)

10. आर्गेनोफास्फेट्स क्या हैं? किन्हीं दो आर्गेनोफास्फेट्स के नाम लिखिए।
What are organophosphates? Write the names of any two organophosphates.

organophosphates :- organophosphates are harmful
content which may lead to organophosphorus
poisoning

name

Organ

phenyl

organic compounds
having phosphate
group
useful in Agri

(Write above this line only)

11. मानव नेत्र का 'प्रेसबायोपिया' दोष क्या है?
What is 'Presbyopia' defect of human eye?

Presbyopia :- it is eye defect in which the distance
vision remain intact as but the near vision
gets affected weak muscles.

Correction :- By using bifocal lense

(Write above this line only)

convex

12. 'विद्युत विभव'
'Electric potential'

Electrical potential :- The amount of electricity
required to the device to reach its working
position is called electrical potential
work done in taking a unit charge.

(Write above this line only)

13. टॉप-डाउन नैनो-तकनीक की व्याख्या कीजिए।

Explain top-down nano-technology.

(1.5)

Top down nano technology :- in which the larger molecules were broken down into smaller piece in order to attain nano scale of the matter which is 10^{-9} scale is called top down nano technology

(Write above this line only)

14. 'वन वेब इंडिया-2 मिशन'
'One Web India-2 Mission'

One web india - 2 mission :- It is the digital mission of India in which more focus was given to digitalized the content from different department and ministries and maintain them on one website for holistic content update

(Write above this line only)

global communication network via satellite

Do not write product

15. पेलोड 'SHAPE'
Payload 'SHAPE'

Payload SHAPE :- It is the payload of Aditya L1 mission in order to study the sun environment and coronal effect including solar flares

(Write above this line only)

(0)

Chandrayaan-2

16. 'आदित्य L-1 मिशन'
'Aditya L-1 Mission'

1.5

Aditya L1 mission :- launched in 2023, by ISRO to

(i) Sun mission :- it is the sun mission of ISRO ✓

(ii) Location :- it is placed at Lagrange point L1 ✓

(iii) Launch vehicle - PSLV-C57 ✓

(iv) Objective :- Study Sun environment include study of coronal effect & Sun flares ✓

(Write above this line only)

17. R-CAT क्या है? इसकी स्थापना का उद्देश्य स्पष्ट कीजिए।
What is R-CAT? Explain the purpose of its establishment.

1.5

R-CAT - means Rajiv Gandhi Centre for
advance technology ✓ R-CAT was already there
~~was~~ existing at Jodhpur, Jodhpur & Ahmed, in
recent budget announced to established at all department
H.O.

purpose → → Enhance research & development
→ promote innovation among students ✓

(Write above this line only)

18. 'बिग डेटा' की अवधारणा
Concept of 'Big Data'

are structure, semi-structured, unstructured data

Big data :- it is the robust data server where

any individual can store their data by

online medium, and can access and

use these data as and when required

is called Big data

it is semis as platform

19. 'OLED डिस्प्ले'
'OLED Display'

organic (5)

OLED :- optical light emitting diode :-
it is the display screen on which the
crystalline aspect is used for picture quality
by means of light emission is called OLED
display. ment is properties like
brighter

(Write above this line only)

20. 'बाह्य परासरण' और 'अंतः परासरण' का अंतर उदाहरण से समझाइए।
Explain the difference between 'Exosmosis' and 'Endosmosis' with an example.

Exosmosis

Endosmosis

<p>o permeability takes inside the organism matter eg: micronutrient absorbed in alimentary canal.</p>	<p>→ permeability takes outside of organism & matter eg → salt solution is permeable to normal solution.</p>
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Perise
Notes

(Write above this line only)

21. जैव-उर्वरक के रूप में उपयोगी किन्हीं दो सूक्ष्मजीवों का नाम लिखिए।
Name any two microorganisms useful as bio-fertilizers.

9

(a) Rhizobium bacteria :- Rhizobium bacteria is
helpful in maintaining nitrogen level of soil.

(b) Keeneluna :- it is building bio fertilizers
which is helpful in the development of plants
plants growth

(Write above this line only)

22. डॉ. जगदीश चंद्र बसु के द्वारा कौन-कौनसे आविष्कार किए गए?
Which inventions were made by Dr. Jagdish Chandra Basu?

Jagdish chandra Basu - The pioneer scientist
in the field of atomic energy
• he was director of Bhabha atomic
research centre

(Write above this line only)

23. हार्डी-रामानुजन नंबर
Hardy-Ramanujan number

1729 (5)
It is the number developed by pioneer
mathematic James Hardy and Ramanujan

(Write above this line only)

24. राजस्थान में विज्ञान पार्क किन-किन शहरों में बनाए गए हैं?
In which cities have science parks been built in Rajasthan?

Science park developed at- (1)
(i) Jodhpur ✓
(ii) Jaisalmer ✓
(iii) Amritsar ✓
(iv) Udaipur ✓
Jhunjhunun
Jhalawar
Fact deck

(Write above this line only)

25. राजीव गाँधी नॉलेज सर्विस एंड इनोवेशन हब
Rajiv Gandhi Knowledge Service and Innovation Hub

1.5

Rajiv Gandhi Knowledge Service and Innovation Hub

- (i) provision of library - separate for women, student & elderly
- (ii) provide assistance to students in the field of research
- (iii) Digitalization of content with huge repository

(Write above this line only)

Note : Answer the following questions in 50 words. Each question carries 5 marks.

नोट : निम्न प्रश्नों के उत्तर 50 शब्दों में दीजिए। प्रत्येक प्रश्न 5 अंक का है।

1. स्टेम सेल तकनीक क्या है? इस तकनीक की क्षमताओं पर प्रकाश डालिए।
What is stem cell technology? Throw light on the capabilities of this technology.

3

Stem cell technology :- it is the technology which is used to treat cancer, rare disease, Genetic disease etc by using stem cells of human being such as placental stem cell, somatic cell, bone marrow

- Capabilities:
- Treatment of genetic defects :- it is proved effective in treatment of genetic defects
 - Treatment of rare disease such as LSD
 - Growth and development of embryo without gametes - recently UK + US scientist developed it, but failed to recover heartbeat
 - Treatment of blood cancer
 - helpful in development of clones / cloning
 - useful in correction of Genetic defects

Conclusion: it is the futuristic technology, it will enhance the state of art milestone in medical field
new research using these cells.

what is stem cell in one line.

present testing of drugs

2. पराश्रव्य/पराध्वनि तरंगों के कोई पाँच अनुप्रयोग बताइए।

Mention any five applications of ultrasonic waves.

3.5

ment specific property

Ultrasonic wave :- It is sound wave which is

having multipronged application in different field.

(a) Diagnosis :- diagnosis of different disease

(b) Treatment :- ultrasound

by using ultrasound machine.

therapy is very much effective in physio-therapeutic treatment.

ultrasound of stenosis

such as Acheilities, tendinitis, calcaneum spur, soft injury

(c) Navigation :- such as

SONAR - Sound and navigation & navigation system.

(e) Education & other scientific education

(d) Research & development

Ultrasound is used to

ultrasound is used for different research purposes of

Research and academic discipline medical field

good use of flow charts

Applications

3. राजीव गाँधी फिनटेक डिजिटल इंस्टीट्यूट

Rajiv Gandhi Fintech Digital Institute

3.5

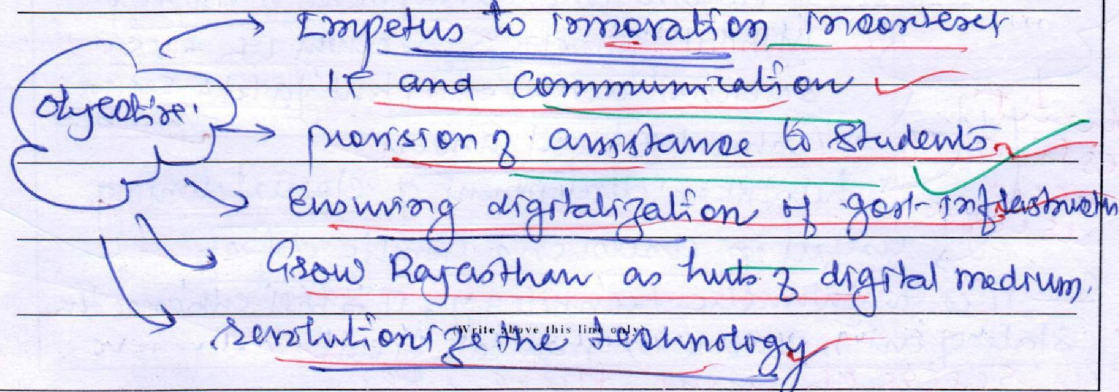
Rajiv Gandhi Fintech digital institute :- which is

established at Jodhpur

with 672 cr expenditure

in recent budget :- it is announced that one fintech

university will be established at Jasrana



4. ABO रूधिर वर्ग के लिए उत्तरदायी जीन प्रारूप को बताते हुए इस रूधिर वर्ग का महत्व समझाओ।

Explain the importance of ABO blood group by describing the gene pattern responsible for this blood group.

is classified of blood based on presence of Antigen on RBC

ABO :- invented by Karl Landsteiner

Importance :-

ABO Blood group is determined by the blood group gene

Individual Gene pattern	Gene	Phenotype
$I^A + I^A$	$I^A I^A$	A
$I^B + I^B$	$I^B I^B$	B
$I^A + I^B$	$I^A I^B$	AB
$I^A + I^O$	$I^A I^O$	A
$I^B + I^O$	$I^B I^O$	B
$I^A + I^B$	$I^A I^B$	AB
$I^O + I^O$	$I^O I^O$	O

(Write above this line only)

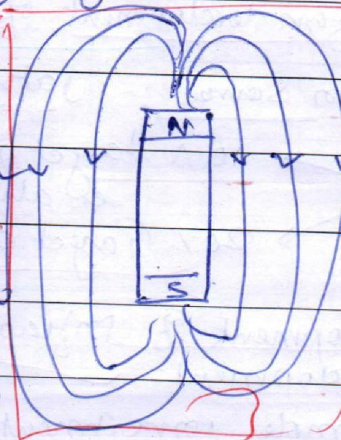
5. चुंबकीय क्षेत्र रेखाएँ क्या होती हैं? इनके प्रमुख गुणों की व्याख्या कीजिए।

What are magnetic field lines? Explain their main properties.

Magnetic field lines: magnetic field line emerges or enters from north pole of magnet and enters the south pole of bar.

Properties :-

- (i) Emerges from north pole
- (ii) Enters into south poles
- (iii) Running parallel to each other
- (iv) They never intersect each other



- (v) It is closer when magnetic field is stronger
- (vi) It is away from magnetic bar when magnetic field is weak

6. पर्यावरणीय समस्याओं के प्रबंधन में 'कार्बन डॉट्स' की भूमिका पर प्रकाश डालिए।
Highlight the role of 'Carbon Dots' in the management of environmental problems.

Carbon dots :- are semiconductor material, How
used for environmental cause such as

(i) as act carbon sinks :- carbon dots are act
as carbon sinks. How?

(ii) helpful in reducing green houses gases :- it is type
of renewable sources

(iii) helpful in controlling acid rain

(iv) helpful in carbon sequestration

→ Anti-microbial property
→ sensing of pollutant

7. 'जैव ईंधन पर राष्ट्रीय नीति- 2018'
'National Policy on Biofuels- 2018'

National policy on Biofuels-2018 :- it is the hydrolic
policy for development of biofuel

• raw source :- Jatropha, Karanj, neem, mahua

(i) Target → 10% target of blending of petrol & diesel is already completed by 2022

→ 20% target of blending with petrol & diesel
by 2025

(ii) Development of infrastructure and Research & development

(iii) promote investment in the field of biofuel

con:- No argument of perspective india launched
international global biofuel alliance during G20
presidency

classify Biofuel

2 name material

3.5

Both some thing

(Write above this line only)

(Write above this line only)

8. केन्द्रक की संरचना का वर्णन करते हुए इसके कार्यों को लिखिए।
Describe the structure of the nucleus graphically and write its functions.

1.5, make the dig

Nucleus :- nucleus is the part of prokaryotic cell which is the repository of RNA & DNA and which is the main part of the cell & helpful in determining genetic make up of an individual.

Functions :- cell division, inheritance

(i) determining genetic encoding of an individual

(ii) it consist DNA & RNA material

(iii) it consist few ATP - Adipose for phosphate for energy

(iv) Responsible for genetic defects, such as Down syndrome, Patau syndrome, Turner syndrome

(v)

(Write above this line only)

9. AI क्षेत्र में भारत को ग्लोबल लीडर बनाने का मेगा प्लान 'इंडिया AI' क्या है? स्पष्ट कीजिए।
What is 'India AI', the mega plan to make India a global leader in the AI? Explain.

1.5

India AI :- India Artificial Intelligence & India's generative Artificial intelligence such as chat GPT, Google bard, etc.

expert group

India plan :-

ment specific finding of

(i) AI policies of India :- India launched it policy for AI for further development

(ii) NITI Aayog white paper on AI

(iii) Telangana declared - 2023 as AI Year

(iv) ~~AI~~ CRAI Institute :- Central Robotics & Artificial Institute

(v) Global Cooperation for Responsible AI

India adopted holistic approach on the perspective of AI

10. 'लूना-25' और 'चन्द्रयान-3' मिशन का अंतर स्पष्ट कीजिए।

Highlight the difference between Luna-25 and 'Chandrayaan-3' mission.

2.15

<u>Chandrayaan-3</u>	<u>Luna 25</u>
- India's moon mission on South pole of moon	→ Russian moon mission on South pole moon
→ partially powered & partially self propelled	→ Fully powered mission for entire course & journey
→ Took more than 45 days	→ Took less time approximately one week
→ Successful soft landing	→ mission failed & crashed
→ launched by ISRO	→ launched by ROSCOSMOS
→ launched vehicle PSLV mk III	→ BSLV named <u>2V-111</u>
→ Landed at South pole	
→ landing point - mission Shakti	

Techn specifications

?

11. S-400 ट्रायम्फ मिसाइल सिस्टम क्या है? भारत के लिए इसकी खरीद का महत्व स्पष्ट कीजिए।

What is S-400 Triumph Missile System? Explain the importance of its purchase for India.

3.5

S-400 Triumph missile system - it is the anti missile defense system with a range of approximately 4000 km. India has purchased from Russia despite of G7's sanction of USA on Russia. surface to air importance.

- (i) Augment anti missile defense capability
- (ii) Strengthening the front line situation such as Pakistan & China. - China has S-300
- (iii) Deterrence among hostile neighbours
- (iv) Strengthening military capabilities
- (v) Boost overall morale of defense
- (vi) Build defense & strategic ties with Russia
- (vii) Development of air force capability

12. OTT प्लेटफॉर्म के भारत में मजबूत विकास के क्या कारण रहे हैं? वर्णन कीजिए।

What have been the reasons for the strong growth of the OTT platform in India? Describe.

3.5

OTT - means over the top platforms *ment*

Reasons for strong growth *ex*

(i) Launch of 4G & 5G services easy and cheap made it more accessible

(ii) Content on access and availability *large*

(iii) Diversity of content *young*

(iv) Prevalence of pandemic (COVID-19) people staying in house *people staying*

(v) Cost effectiveness of OTT platforms

(vi) Content quality (vii) More streaming of content

(viii) High penetration of smart phone people have more options

13. सुब्रह्मण्यम चंद्रशेखर और सी.वी. रमन के वैज्ञानिक योगदान को स्पष्ट करें।

Explain the scientific contributions of Subramaniam Chandrasekhar and C.V. Raman.

2.5

Subramaniam Chandrasekhar :-

(i) limit regarding Black hole

(i) Renowned Scientist in the field of space

technology (ii) he was discoverer of IASO

C.V. Raman :-

(i) won noble prize

(ii) explained & evolved Raman effect :- in the

field of relativity theory

(iii) contributed in scientific temper in India

Scientist pioneered the development of India as a unique perspective on world map

(Write above this line only)

14. 'राष्ट्रीय डिजिटल साक्षरता मिशन' पर एक लेख लिखिए।
Write an article on 'National Digital Literacy Mission'.

2.5

main objective of "at least

National digital literacy mission :- It aims to create

digital literacy by various means :- one person digital literate

(i) Create digital literacy among youth,

(ii) Bridge digital divide

(iii) Skill development in context of digital context

(iv) Creating a pool of digitally skilled people

(v) Digitally assist vocational training

(vi) Creating opportunities of employment

(vii) provide assistance for digital literacy

(Write above this line only)

15. राजस्थान सरकार की 'घर-घर औषधि-योजना' पर एक लेख लिखिए।
Write an article on 'Ghar Ghar Aushadhi Yojana' of Rajasthan Government.

3.5

Ghar-Ghar aushadhi yojna :- launched in 2021

to enhance and provide boost to traditional medicinal plant it includes plant

(i) Tulsi (Ocimum sanctum)

(ii) Neem (Azadirachta indica)

(iii) Shilajit, Turpionema, #

(iv) Ashwa Ganda - Withania somnifera

well address demand

object/aim :- distribute 2 plant of each variety in total 8 to every and year free of cost

Timeline :- 2020-21 to 2024-2025

goal adds

the flagship initiative to provide boost to the

traditional medicinal plants growth

16. पादपों में 'स्वपरागण' और 'पर-परागण' का अंतर बिंदुवार समझाइए।

Explain point wise the difference between 'self-pollination' and 'cross-pollination' in plants.

<u>Self pollination</u>	<u>Cross pollination</u>
<ul style="list-style-type: none"> It happens on same plants ✓ 	<ul style="list-style-type: none"> Cross pollination is in male & female gametes of different plants ✓
<ul style="list-style-type: none"> both are male & female gametes available on same plants ✓ 	<ul style="list-style-type: none"> Both male & female gametes are on different plants ✓
<ul style="list-style-type: none"> By means of air, ✓ 	<ul style="list-style-type: none"> By means of insect, air & Birds ✓
<ul style="list-style-type: none"> no effective pollination is required ✓ 	<ul style="list-style-type: none"> pollinators plays an important role ✓
<ul style="list-style-type: none"> ex - <u>Rohida</u> ✓ <u>mustard</u> ✓ 	<ul style="list-style-type: none"> ex - <u>Gram</u>, <u>mustard</u> ✓ <u>pepays</u> ✓

(Write above this line only)

Note : Answer the following questions in 100 words. Each question carries 10 marks.

नोट : निम्न प्रश्नों के उत्तर 100 शब्दों में दीजिए। प्रत्येक प्रश्न 10 अंक का है।

1. सूचना-प्रौद्योगिकी के क्षेत्र में राजस्थान में हाल के वर्षों में हुई प्रगति और सरकार की नवीन पहलों का वर्णन कीजिए।

Describe the progress made in recent years in Rajasthan in the field of information technology and the new initiatives of the government.

5.5

Concept Information technology :- It is defined as use of internet and other digital technology such as use of digital medium, software, new apps, robust digital platform for the concept of welfare state & export imp.

Program made:-

(i) Robust development of universities, and implementing IT till school levels.

use flow chart to represent better (ii) Robust Governance/redressal mechanism :- Rajasthan Sampark

(iii) Establishment of Fintech University at Jaipur

(iv) Digitalization of Medical infrastructure

(v) Enhanced digital literacy and *ment* *goals* Rajasthan Jan Soochna portal :- open *Dr. Pr* *Dr. Pr* government scheme and programmes

(vi) Digitalization of police station - online FIRs

(vii) Innovation at RPSC - SSO IP, on screen marking system, online applications

(viii) Remote Sensing Centre at Jaipur

(ix) Social division of Science

New Initiative → new fintech university proposed at Jaipur
→ smart phone distribution for digital & information technology literacy
→ Special boost for Rajasthan investment promotion scheme
→ Digitalization of Government scheme application

In conclusion, Rajasthan is paying ~~off~~ lot of focus on the growth of IT and may be prosperous in the future *ment's* *benefits* *of* *these* initiatives like EODB.

2. निम्नलिखित पर टिप्पणी कीजिए:-

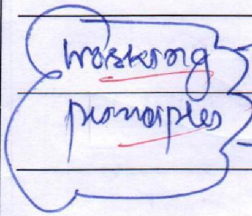
- A. क्वांटम कंप्यूटिंग B. क्लाउड कंप्यूटिंग C. वर्चुअल प्राइवेट नेटवर्क D. VoLTE
A. Quantum Computing B. Cloud Computing C. Virtual Private Network D. VoLTE

6

(a) Quantum Computing :- Use of quantum physics.

in order to solve the provided problem.

well explained



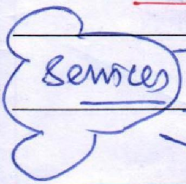
→ Superposition :- it represent qubits, 0, or 1 together to solve the problem.

→ entanglement :- it established coordination among qubits.

(b) cloud computing :- it is defined as robust platform on which all the computing services can be available

in accordance with requirement the uses

(eg) google Drive



→ services as a software

→ services as data storage platform.

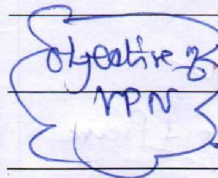
→ services of operating system.

→ services as facilitators.

(c) Virtual private network :- it is defined as the

local area network of a small organization subject to confined in the organized, connected, virtually

means uses of VPN



→ Ensure the threat & cyber security

→ Connected internally for use of organization only

→ it is employee friendly local area network

→ rebound testing

(d) VoLTE :- ^{means voice over long term evolution} The technology used offer launching of services which facilitate voice over the internet

not LTE

in which is possible

(i) simultaneous working of voice and internet

(ii) uninterrupted services in both aspect

(iii) it is useful in IOS and apple operating system

(write above this line only)

3. रेडियो-सक्रिय किरणों कौन-कौन सी हैं? इन कणों/किरणों का तुलनात्मक अंतर स्पष्ट कीजिए।
What are the radio-active rays? Explain the comparative difference between these particles/rays.

Radio active rays:- The rays which is active \rightarrow ion

decay of radio nuclei

Context of ~~radio~~ nuclear radio active substance

which are prominently \rightarrow Alpha rays α
 \rightarrow Beta rays β
 \rightarrow Gamma rays γ

Comparative differences \rightarrow in table

(i) Alpha rays:- (a) Discovered by: Becquerel

(b) emitting ~~electrons~~ helium ${}^4_2\text{He}$ as end products

content is upto mark

(c) less penetrating power than Beta & Alpha rays

(d) it can penetrate aluminium sheet of 0.002 cm

(e) useful in non medical use

(ii) Beta rays:- (a) Discovered by: Rutherford

can be better present it is useful for

emit $\left\{ \begin{array}{l} \text{Beta positive} - \text{convert neutron into proton} \\ \text{Beta negative} - \text{convert proton into neutron} \end{array} \right.$

(b) moderate / intermediate penetration power between

Alpha rays & Gamma rays: (a) can penetrate

aluminium sheet of 0.2 cm

(a) utility of beta rays in non medical field

(ii) Gamma rays:- (a) discovered by Marie Curie & Ponce

add conclusion suggesting significance all these

(b) emitting photon as end product

(c) highest penetration power among these rays

(d) can penetrate aluminium sheet of 100 cm

(e) used in medical field such as ~~star~~ UV rays

In conclusion, the rays calculated in terms of carbon dating and half life of the radioactive substances

4. चुंबकीय अनुनाद प्रतिबिंबन क्या है? इसके प्रमुख गुणों की चर्चा करते हुए इसकी कमियों को भी दर्शाइए।
 What is magnetic resonance imaging? While discussing its main qualities, also show its shortcomings.

Magnetic resonance imaging :- MRI is the diagnostic machine for musculo skeletal disorder, which is

based on principle of using magnetic field in order to scan human body for effective diagnosis.

main qualities :-

(i) effective diagnosis :- best resort of musculo-skeletal diagnosis

(ii) effectively used in intervention medicine/radiology

(iii) Cost effective :- in post covid perspective it became cost effective

(iv) accessibility and availability :- new MRI machines is made accessible and available new augmentation in diverse dimension of medical field.

(v) less harmful to patient :- magnetic field gives less adverse impact on human body than X rays.

(vi) easy to process and conduction :- it is simple and not harmful or radioactive.

(vii) non painful diagnostic procedure

- Shortcoming**
- Lack of trained manpower
 - Contradictory for patient with implants (pacemaker, TMR, THR (total knee replacement) total hip replacement)
 - Lack of infrastructure & strict guideline of radiotherapy and nuclear medicine authorities
 - Lack of sensing facilities

It is revolutionary technology in the field of medicine, augmented by fMRI and it is future in diagnostic field

overall good, futuristic

Conceptual clarity

Satisfactory results obtained

better dig can be used

like

Can give suggest to improve

5. टिप्पणी कीजिए:-

- A. धातुओं के निष्कर्मण की 'निस्तापन' और 'भर्जन' विधि में अंतर
(Difference between 'Calcination' and 'Roasting' method of refining metals)
- B. दैनिक जीवन में pH मान का महत्त्व (Importance of pH value in daily life)
- C. विद्युत धारा के प्रकार (Types of Electric Current)
- D. उपार्जित प्रतिरक्षा (Acquired Immunity)

(a) Calcination & Roasting: both are metallurgical processes

Calcination: heating of metal or ore in the presence or absence of oxygen in order to purification or extraction of pure material.

avoid faulty error

Roasting: heating / electrolysis of metal / ores in the absence of oxygen in order to purification of metal.

pressure

- (b) Importance of pH in daily life
- Tooth decay: pH below 5.4 scale tooth decay starts
 - In digestion: by gastric juice & HCl
 - Maintain pH of stomach
 - Maintaining pH of swimming pool - alkaline
 - Maintain alkaline pH of home water drainage system to avoid corrosion

(c) Types of electrical current

Can use labels for comparison

- (1) Alternate current (A.C. current): it is the direct source of current used directly in home, industry, & other applications.
- (2) Direct current (D.C. current): is the direct current which is used by diminishing its voltage level by using capacitor / Adaptor.

(d) Acquired immunity: Immunity is acquired from

previous infect

- outside by means of vaccination: in which the dead or live microbes introduced in body, so body can produce antibodies against it.
- By microbes: when microbes attack, body maintain memory & keep generation antibodies for specific microbes.

(Write above this line only)

6. स्वदेशी रूप से विकसित मोबाइल ऑपरेटिंग सिस्टम Bharat OS क्या है? Bharat OS के महत्त्व पर प्रकाश डालिए।

What is Bharat OS, an indigenously developed mobile operating system? Highlight the importance of Bharat OS.

6-5

Bharat OS :- means Bharat operating system
 is indigenously developed operating system for
IOS smart phone ✓ by IIT Madras

Importance:-

(i) Augmenting Atma Nibhan Bharat initiative:-

Indigenous development of operating system will help India to achieve an ambition of Atma Nibhan Bharat

(ii) Fueling aim of self reliance:- in future India may become self reliance in the field of OS

(iii) Reducing Import bill:- it will save foreign &

reduce dependency and channelized focus in other field

(iv) Development of employment:- it is the solution for India in which there is ample opportunities for employment

(v) Augmenting Scientific discipline:- it will boost India's scientific discipline in the field of OS

(vi) Reduce dependency on foreign nation:- development of OS indigenously will reduce dependency on foreign nation especially adversers like China

(vii) Can build India as exporter:- more opportunity for India to become net importer to net exporter

(viii) Contribution in GDP growth:- it will enhance GDP of the country

(ix) Development of skilled manpower:- it will further

boost skilled manpower as India is home to demographic dividend

In conclusion it will fuel the dream of India to

(Write above the line only)

be the \$trillion economy as envisaged

help in balancing economy & security in near future

avoid length of lines

use key word to better content

use flow chart

7. जनरेटिव AI को परिभाषित करते हुए इसके लाभों और संभावित चुनौतियों का वर्णन करें।

Define generative AI and describe its benefits and potential challenges.

6.5

Context
intro

well
defined
concept

Generative AI :- ^{Artificial} Generative Intelligence is the futuristic technology such as chat GPT, India AI google bard; which is helpful in development of content

and solution to the problem by using online sources.

It also include analysis of data, ~~photos~~ photographs.

Benefits

- (i) Boost to academic and academic research.
- (ii) Augmenting the skill and knowledge development in demographic dividend.
- (iii) Opportunities of employment in the digitalized world.
- (iv) development of scientific temper.
- (v) Cost effective and time saving. *cite report by NITI AAR*
- (vi) Multiple platforms: such as chat GPT, ~~bar~~ bard.
- (vii) Boost to industries: such as IT industries, content creating industries.

fair
point

Challenges:-

- (i) ~~Threat~~ may arise more opportunities of unemployment.
- (ii) Digital divide: such as country like india, lacking digital literacy.
- (iii) Ethical issue: it may disrupt opportunities of skilled people & unskilled people.
- (iv) Hindrance to creativity: AI may hinder creativity of human being. *may reap dividend.*
- (v) Threat to privacy and may leads to plagiarism.
- (vi) ~~It is~~ bound by digital content: updates are surely available.

no
deep
facts

In conclusion if the AI is used responsibly, it will reap multipronged ^(write about the benefits) benefits to diverse discipline.

suggest few steps to counter above challenges.

(A) Change the following sentences from Active form to Passive form: (Q. No. 1-7)

Marks 7

1. The old beggar stole my dog yesterday.

2. They promised us higher wages at the factory.

3. They took down the notice.

4. People felt that the social workers were doing valuable work.

5. The architect decided to have his assistant to design the building.

6. Don't let your failure depress you.

7. Do they make bulbs in this factory?

(B) Change the following direct sentences into indirect sentences: : (Q. No. 8-14)

Marks 7

8. He said, "I have already read this book."

9. The employer said to the workers, "I cannot pay you higher wages."

10. "When shall I know the result of the test?" asked the candidate.

11. "Let the nations forget their differences and work together for peace," said the preacher.

12. "Has your book been published?" I asked the writer.

13. You must work hard if you want to complete your course in time," said the teacher.

14. He said, "I know that hard work is not suitable for me. So I should think out a plan for my future days of laziness."

(C) Identify the error and rewrite the correct form of the following sentences: (Q. No. 15-20) Marks 6

15. The crowd was waiting for the Chief Minister on the airport.

The crowd was waiting for the chief minister at the airport.

16. The crowd pressed over the fence.

The crowd crossed over the fence.

17. The house could not be finished of lack of funds.

The house was could not be finished due to lack of funds.

18. She was deprived from her appointment.

She was deprived of her appointment.

19. The child is very clever for mimicking others.

The child is ^{very} clever for mimicking others.

20. The thief was bound by a chain.

The thief was bound a chain.

1. जिला कलेक्टर, सवाईमाधोपुर की ओर से मुख्य चिकित्सा एवं स्वास्थ्य अधिकारी सवाईमाधोपुर को जिले की कोविड-19 टीकाकरण अभियान की प्रगति रिपोर्ट भिजवाने हेतु अनुस्मारक लिखिए।

राजस्थान सरकार

कार्यालय: जिला कलेक्टर, सवाईमाधोपुर

सवाई माधोपुर: राजस्थान

4.5

प्र.क्र. 6(8)/1/वि.वि/2023/105

दिनांक 03 दिसम्बर 2023

अनुस्मारक

मुख्य चिकित्सा अधिकारी

सवाई माधोपुर, राजस्थान, भारत
- 331545

विषय: कोविड-19 टीकाकरण अभियान की प्रगति रिपोर्ट

भिजवाने बाबत

संदर्भ: कार्यालय जिला कलेक्टर सवाईमाधोपुर प्र.क्र. 6(8)(1)

वि.वि/2023/101 दिनांक 10 दिसम्बर 2023

आपको यह विदित किया जाता है कि यथा दिनांक तक
आपके कार्यालय की कोविड-19 टीकाकरण अभियान की
प्रगति रिपोर्ट उपरोक्त कार्यालय में नहीं मिल पायी है।
इस पर्यंत आप क्या विद्यमान देवें और प्रगति रिपोर्ट
अतिशीघ्र भिजवाने की कृपा करें।

अवधीय

करमज

(करमज)

जिला कलेक्टर

सवाई माधोपुर

संलग्न: उपरोक्त संदर्भ में लिखा गया पत्र की प्रतिलिपि

प्रतिक्रिया:

दिनांक

अवधीय

ment that

2. दिए हुए अंग्रेजी अनुच्छेद का हिन्दी में अनुवाद कीजिए।

We want that the whole should know that we are the worshippers of peace and that we have our own history and that we believe in the co-existence of the people of the world. In fact, the organisation of the competitions or the Olympic games is only a means. We do regard these games as only a festival of the youth of the world where they may develop the qualities of friendship, brotherhood and mutual good will by mingling with one another and playing together in a healthy competitive spirit.

In ancient time when the olympic games or the youth festivals were held then debates on philosophical topics wer organised. The learned used to exchange knowledge, the poets used to describe history in poetry and artist and musicians used to develop new art and let them understand the civilization for the preservation of which the world peace is essential.

संसार को यह ज्ञाना चाहिए कि हम शांति के उपासक हैं और इसी में एमारा इतिहास की है और हम विश्व के लोगों को एक साथ रखने में विश्वास करते हैं इससे किसे प्रतिस्पर्धा के ओलंपिक खेल एक साथ ही हमारी खेल के प्रति सकारात्मक संभावना है और हम खेलों को विकसित करने के समर्थक मानते हैं जहाँ यह एक व्यापार की तरह मानते जहाँ युवा, वेस्ती आई-वाठ; आपसी तालमेल, और खेल भावना का विकास कर सके :-

प्राचीन समय में जब ओलंपिक खेल व युवा उमर के समय व शिशु काल में सर्वोच्च संस्कारों का आयोजन था इससे युवाओं का बुद्धि, कविता, गद्य, पद्य का विकास के साथ पुरानी विद्यालय के बारे में ज्ञान के मिलना था और सर्वोच्च भावना का उजागर होता था हम इसी भावना को इस ओलंपिक खेल में प्रस्तुत करना चाहते हैं।

Complete remaining lines as well